

flooding was caused principally by local rains, occurring mainly from June 11-19.

*Upper Mississippi Basin.*—Minor overflows developed in the lower Chippewa River and in the Kickapoo River from concentrations of heavy rains on June 1-2.

Floods in the Raccoon and lower Des Moines Rivers during June were continuations of those that occurred in the latter part of May. Periods of prolonged rainfall, combined with low temperatures which prevailed in April and May, persisted during June. The June floods, standing alone, were not out of the ordinary. However, the total number of individual overflows and the total number of days above flood stage during any calendar year were exceeded at some stations in the period March-June, inclusive. At Ottumwa, Iowa, there were 41 days with stages above bankfull, equalling the record of 1915, and exceeding by 6 the number of days in 1944. At Tracy, Iowa, stages were above bankfull a total of 40 days.

The Illinois River and the Salt, Fox, and Meramec Rivers in Missouri also were in flood. In the lower Meramec River stages were within several feet of the record flood of August 1915, and upstream at Sullivan, Mo., the crest was only 0.6 foot lower than the all-time high in 1915. The Bourbeuse River at Union, Mo., crested at 19.1 feet on June 10, within 0.1 foot of the record flood of October 1919, at that place.

Moderate flood stages prevailed in the Mississippi River at and below Burlington, Iowa. At St. Louis, Mo., the river has passed flood stage 4 times during the Spring, in consecutive months. Previously, three consecutive months with a stage of 30 feet (flood stage) or higher had been the record; these were recorded in 1892, 1915, 1927, and 1943. Crest stages at St. Louis during 1945 were as follows: March, 32.4; April, 33.9; May, 32.1; and June, 35.3 feet.

At Cape Girardeau, Mo., the crest of 38.2 feet on June 15 has been exceeded in only 4 previous years.

*Missouri Basin.*—The Missouri River exceeded flood stage from Nebraska City, Nebr., to the mouth, and most of the tributaries from Sioux City, Iowa, downstream were in flood. Heavy to locally excessive rains on June 15 over northern Kansas, eastern Nebraska, western Iowa, and northern Missouri caused rapid rises and considerable overflow in this area. Stages were generally below those of April this year and the floods of 1943 and 1944. Notable exceptions were the Delaware River in Kansas and the headwaters of the Gasconade River in Missouri, where record or near record stages were reached.

On June 8-9, excessive rainfall averaged 3 inches or more over the Gasconade and Meramec River basins, with local amounts of 6 inches or more. The heavy rains centered over the headwaters of the Gasconade in the vicinity of Newburg, Mo. Five lives were reported lost, and considerable property damage occurred in Newburg.

*Ohio Basin.*—Floods during the month were confined to the Scioto River in Ohio, the Wabash River system, and the extreme lower Ohio River at Dam 53 and Cairo, Ill. No excessive stages were reported. The principal feature was the prolonged rainy spell which resulted in long periods of above flood stage, especially in the White and lower Wabash Rivers. At Hazleton, Ind., the river was above flood stage a total of 72 days during the past 4 months, and at Mt. Carmel, Ill., 63 days.

*White, Red, and Arkansas Basins.*—Persistent rainstorms in Kansas, Oklahoma, Missouri, and Arkansas have kept streams in this area at above normal stages, and there have been repeated and recurring floods. For the White River readings have been almost continuously above flood stage since February.

Heavy rains on June 9-10 occurred along the Arkansas River below Muskogee, Okla., and resulted in high stages in the Arkansas and Poteau Rivers. At Fort Smith, Ark., an all-time record rainfall of 4.66 inches occurred in 2 hours and 14 minutes, and a 24-hour total of 10.47 inches occurred at Webbers Falls, Okla.

The floods in the Red River Basin were caused by excessive rains over the area below Denison Dam and locally heavy rains in the Lake Texahoma watershed. Precipitation ranged from 2.5 to 8 inches on June 12-14, followed by 2 to 3 inches on June 17-18. Several stations in southeastern Oklahoma recorded 7.8 to 13.7 inches of rain during the month.

*West Gulf of Mexico drainage.*—Considerable overflows occurred in the Sabine River, and moderate flood stages prevailed in the Trinity River.

*Pacific Slope drainage.*—The annual high water in the Kings River from melting snow occurred during mid-June. The water was diverted into canals for irrigation purposes, and no damage occurred.

The Columbia River reached its annual crest at Vancouver, Wash., on June 10-11, with a reading of 18.4 feet. There was no damage except erosion of river banks, flooding of low-lying pastures, and some delay to ship-building.

#### FLOOD-STAGE REPORT FOR JUNE 1945

[All dates in June unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest <sup>1</sup>	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Huron	Feet				
Tittabawassee: Midland, Mich.....		18	2	5	21.8
Lake Erie					
St. Marys: Decatur, Ind.....	13	18	23	16.7	21
ATLANTIC SLOPE DRAINAGE					
Susquehanna: Oneonta, N. Y.....	12	May 14 (May 18)	May 14 May 18	12.1 12.4	May 14 May 18
EAST GULF OF MEXICO DRAINAGE					
Pearl:					
Jackson, Miss.....	18	15 18 20	16 18 22	18.7 18.7 18.8	16 18 21
Pearl River, La.....	12	21	25	12.8	23
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Chippewa: Durand, Wis.....	11	4	6	11.5	5
Zumbro: Thielman, Minn.....	35	2	3	35.8	2
Rock: Moline, Ill.....	10	30	July 4	10.2	June 30- July 2
Cedar: Waterloo, Iowa.....	12	2	3	12.8	2
Raccoon:					
Jefferson, Iowa.....	12	May 23 May 29	May 26 May 29	13.1 12.0 14.2	May 24 May 29 3
Van Meter, Iowa.....	13	10 May 31 4 13	11 11 7 13	13.4 15.2 15.7 13.0	10 May 31 7 13
Des Moines:					
Tracy, Iowa.....	14	May 25 21	11 21	17.6 14.6 16.2 14.2	May 27 3 7-8 21
Eddyville, Iowa.....	15	May 25 15 21	12 18 21	18.6 17.4 17.2 15.5 15.8	May 27 8 11 16-17 21
Ottumwa, Iowa.....	9	May 25	12	12.1 11.0 10.9 10.8	May 28 6 9 11
Fox: Wayland, Mo.....	15	16 16	17 17	9.2 17.3	16 17
Salt: New London, Mo.....	19	May 17 8 17	May 19 11 17	22.0 23.3 19.2	May 18 10 17

See footnotes at end of tables.

## FLOOD-STAGE REPORT FOR JUNE 1945—Continued

[All dates in June unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest †	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Upper Mississippi Basin—Continued					
Illinois:	<i>Feet</i>			<i>Feet</i>	
Morris, Ill.....	13	May 15	May 21	15.4	May 18
Peoria, Ill.....	18	May 18	May 27	19.6	May 21
Havana, Ill.....	14	May 15	7	19.8	May 23
		18	25	18.2	May 23
Beardstown, Ill.....	14	May 15	July 4	15.0	20-21
				19.4	May 24
Bourbeuse: Union, Mo.....	12	May 15		15.6	14
				17.6	22
Meramec:		9	11	19.1	10
Sullivan, Mo.....	11	May 30	May 30	12.6	May 30
Pacific, Mo.....	11	May 30	12	32.4	9
				15.0	1
Valley Park, Mo.....	14	May 30	15	28.5	10
		1	2	15.0	1
		9	15	33.0	11
Mississippi:					
Gordons Ferry, Iowa.....	13	3	14	13.5	11-12
Keokuk, Iowa.....	12	3	20	14.3	10
				17.0	16
Gregory Landing, Mo.....	12	May 15	May 21	15.1	May 18
		May 31	22	14.6	10-11
Quincy, Ill.....	14	2	22	16.8	16
				17.7	10-11
Hannibal, Mo.....	13	May 28	25	19.6	17
				13.8	May 31
Louisiana, Mo.....	12	May 28		18.3	10-11
				19.8	18
		May 25	24	12.3	May 29-31
Grafton, Ill.....	18	26	(?)	17.9	11
				18.5	18
		May 17	May 24	12.4	27
St. Louis, Mo.....	30	8	27	21.9	May 21-22
				24.0	13
Chester, Ill.....	27	Apr. 15	May 2	23.2	21
		May 19	May 26	35.3	13
Cape Girardeau, Mo.....	32	May 29	4	33.9	23
		9	29	33.6	Apr. 23
		Apr. 13	3	30.6	May 23
		10	29	28.0	2
				34.4	14
				33.0	25
				37.9	Apr. 22-24
				38.2	15
				37.2	24-26
Missouri Basin					
Solomon:					
Beloit, Kans.....	18	26	27	20.3	27
Minneapolis, Kans.....	26	May 22	May 33	28.5	May 22
		16	16	27.0	16
Niles, Kans.....	24	May 22	May 26	28.0	May 25
		18	18	24.2	18
Saline: Tescott, Kans.....	25	May 22	May 24	28.0	May 23
Smoky Hill: Lindsborg, Kans.....	21	May 29	July 2	28.3	July 1
Republican:		27	27	21.8	27
Guide Rock, Nebr.....	9	1	2	9.4	1
Clay Center, Kans.....	15	7	7	9.8	7
		25	26	9.7	25
Wakefield, Kans.....	11	8	8	15.6	8
		16	16	16.3	16
Little Blue: Endicott, Nebr.....	9	15	15	11.1	15
				12.9	May 15
Big Blue:	18	May 14		13.2	May 23
		16		14.6	May 27
				10.2	16
				9.4	19
Barnston, Nebr.....	18	May 14	May 15	22.4	May 15
Blue Rapids, Kans.....	22	May 19	May 23	28.0	May 22
		9	9	19.9	9
		16	16	18.7	16
		30	30	22.8	30
Kansas:					
Manhattan, Kans.....	17	16	16	18.0	16
Topeka, Kans.....	21	30	30	18.0	30
Lecompton, Kans.....	17	18	17	22.5	16-17
Lawrence, Kans.....	18	17	17	19.9	17
Delaware: Valley Falls, Kans.....	22	17	17	20.1	17
Thompson Fork: Trenton, Mo.....	20	16	17	27.8	16
Grand:		18	16	20.2	16
Gallatin, Mo.....	20	May 15	May 19	30.2	May 17
Chillicothe, Mo.....	18	16	18	25.6	18
		May 14	May 21	31.0	May 17
		May 26		19.2	May 26
		May 28	May 28	19.1	May 28
		8	12	28.0	10
		15	20	30.2	17

See footnotes at end of tables.

## FLOOD-STAGE REPORT FOR JUNE 1945—Continued

[All dates in June unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest †	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Missouri Basin—Continued					
Grand—Continued.	Feet			Feet	
Brunswick, Mo. ....	12	{ May 16	May 31	{ 19.6	May 19
		8	15	16.0	May 27
		16	24	15.1	May 29
				15.5	13
				20.6	20
Osage:					
Osawatomie, Kans. ....	28	May 29	1	32.1	May 30
LaCygne, Kans. ....	25	May 29	2	28.3	May 31
Trading Post, Kans. ....	24	May 30	3	25.8	2
Osceola, Mo. ....	20	Apr. 15	May 3	31.1	Apr. 17
		May 1	May 4	60.2	May 3
		May 6	May 6	60.0	May 6
		May 8	May 8	60.1	May 8
Bagnell Dam (Lakeside), Mo. ....	60	May 29	1	60.4	May 30
		8	11	60.5	10
		18	22	60.4	21
		Apr. 15	May 1	31.1	Apr. 19
St. Thomas, Mo. ....	23	May 30	May 31	23.4	May 31
		9	11	25.0	10
Big Sioux: Akron, Iowa. ....	12	12	20	15.2	13
				16.5	17
		May 27	May 28	14.6	May 27
		9	9	14.2	9
Floyd: James, Iowa. ....	14	10	13	16.6	12
		15	18	14.8	17
		26	30	16.7	28
Missouri:					
Nebraska City, Nebr. ....	15	16	18	16.1	17
St. Joseph, Mo. ....	17	16	17	17.2	17
Kansas City, Mo. ....	22	16	19	25.3	18
Lexington, Mo. ....	22	17	21	24.7	19
		May 16	May 19	20.4	May 18
Waverly, Mo. ....	18	May 24	May 27	19.6	May 26
		May 29	May 29	18.0	May 29
		16	22	22.1	19
		May 17	May 22	23.3	May 20
Boonville, Mo. ....	21	May 25	May 28	21.7	May 27
		10	12	21.1	12
		18	24	25.2	21
Jefferson City, Mo. ....	23	May 20	May 21	23.2	May 20
		19	24	24.8	22
		May 17	May 23	23.9	May 21
Hermann, Mo. ....	21	May 25	1	23.0	May 31
		8	15	25.6	11
		18	25	26.6	22
		Apr. 15	May 1	33.0	Apr. 21
St. Charles, Mo. ....	25	May 18	May 24	28.5	May 22
		May 26	3	27.3	May 30
		8	17	30.0	12
		18	26	30.5	24
Ohio Basin					
Scioto:					
LaTune, Ohio. ....	11	17	21	15.0	18
Prospect, Ohio. ....	10	18	21	12.1	20
Circleville, Ohio. ....	14	18	20	15.6	19
West Fork:					
Anderson, Ind. ....	10	16	20	14.0	18
Noblesville, Ind. ....	14	18	20	14.3	19
Ellettsville, Ind. ....	18	16	25	26.6	21
Edwardsport, Ind. ....	12	14	29	24.1	22
East Fork:					
Seymour, Ind. ....	14	18	22	16.4	19
Williams, Ind. ....	10	22	24	11.0	23
White:					
Petersburg, Ind. ....	16	17	29	23.5	24
Hazleton, Ind. ....	16	17	(?)	25.1	25
Wabash:					
Bluffton, Ind. ....	10	19	22	11.0	21
Wabash, Ind. ....	12	20	21	12.4	21
LaFayette, Ind. ....	11	18	22	13.3	20
Covington, Ind. ....	16	20	23	16.9	22
Terre Haute, Ind. ....	14	17	24	16.0	19
Vincennes, Ind. ....	14	17	26	17.1	22
Mt. Carmel, Ill. ....	17	18	30	23.1	25
New Harmony, Ind. ....	15	20	(?)	18.5	20-27
Ohio:					
Dam No. 53, near Mound City, Ill. ....	42	18	28	43.4	26
Cairo, Ill. ....	40	14	30	44.6	26
White Basin					
Buffalo: Gilbert, Ark. ....	30	11	11	34.0	11
Current: Doniphan, Mo. ....	10	{ 10	13	14.0	12
		18	20	12.6	19
Black:					
Leeper, Mo. ....	11	8	10	15.5	9
Williamsville, Mo. ....	11	{ 18	18	18.9	9
		9	15	11.0	18
Poplar Bluff, Mo. ....	16	{ 9	15	20.8	10
		17	21	17.8	19
Black Rock, Ark. ....	14	9	(?)	27.0	16, 18

## FLOOD-STAGE REPORT FOR JUNE 1945—Continued

[All dates in June unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest <sup>1</sup>	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
White Basin—Continued					
White:	<i>Feet</i>			<i>Feet</i>	
Cotter, Ark.....	21	13	14	23.2	May 14
Calico Rock, Ark.....	19	10	15	31.4	12
		17	17	19.0	17
Batesville, Ark.....	23	10	20	34.9	12
				28.7	18
Newport, Ark.....	26	12	28	32.2	14-15
				32.3	18
Augusta, Ark.....	32	12	( <sup>2</sup> )	35.9	16-17
				29.8	Mar.
				29.1	9-10
Georgetown, Ark.....	21	Feb. 24	4	26-27	Mar.
				32.0	Apr. 4
				28.7	Apr. 20
				23.1	May
				22-23	
Des Arc, Ark.....	24	11	( <sup>2</sup> )	25.2	16-20
		14	( <sup>2</sup> )	27.7	21
				33.4	Mar.
				38.2	14-16
Clarendon, Ark.....	26	Feb. 27	( <sup>2</sup> )	39.1	9-10
				29.4	Apr. 24
				25-26	May
				35.5	23-24
				38.6	Apr.
				11-12	
St. Charles, Ark.....	25	Mar. 2	( <sup>2</sup> )	39.2	Apr.
				27.2	26-27
				26-20	May
				33.6	26-27
Arkansas Basin					
Neosho: Burlington, Kans.....	27	30	( <sup>2</sup> )	28.2	30
North Canadian:					
Oklahoma City, Okla.....	12	10	10	12.7	10
East Oklahoma City, Okla.....	14	10	11	15.0	10
Poteau: Poteau, Okla.....	21			35.1	12
				25.5	19
Petit Jean: Danville, Ark.....	20	11	16	25.8	13
		18	20	21.3	19
Arkansas:					
Fort Smith, Ark.....	22	10	15	26.1	13
Van Buren, Ark.....	22	10	16	26.7	11, 13
Ozark, Ark.....	22	11	15	25.8	11
Dardanelle, Ark.....	22	10	17	29.3	12
Morrilton, Ark.....	20	11	16	23.3	13
Little Rock, Ark.....	23	12	15	24.0	13
Pine Bluff, Ark.....	25	13	16	26.4	14
Red Basin					
Little Missouri: Boughton, Ark.....	20	12	15	22.1	13
Saline: Benton, Ark.....	20	12	13	21.6	12
Ouachita:					
Arkadelphia, Ark.....	17	12	16	25.3	13
Camden, Ark.....	26	13	23	38.8	16
Monroe, La.....	40	Mar. 10	6	50.4	Apr. 15
Black: Jonesville, La.....	50	Mar. 18	( <sup>2</sup> )	58.5	Apr. 28,
				30	
Little: Whitecliffs, Ark.....	25	15	22	27.0	16
Sulphur:					
Hagansport, Tex.....	38	12	17	42.4	13
Naples, Tex.....	22	13	24	30.5	16
Cypress: Jefferson, Tex.....	18	16	21	23.0	17
Red:					
Fulton, Ark.....	25	14	25	26.6	15-16
				28.9	22
Grand Ecure, La.....	33	24	28	33.7	26
Alexandria, La.....	32	23	( <sup>2</sup> )	33.7	27
Lower Mississippi Basin					
				15.8	Mar.
				17.5	10-11
Big Lake Outlet: Manila, Ark.....	10	Feb. 23	( <sup>2</sup> )	16.7	Apr. 5-6
				15.2	Apr.
				18.3	20-21
				14-15	May
				20-21	

## FLOOD-STAGE REPORT FOR JUNE 1945—Continued

[All dates in June unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest <sup>1</sup>	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Lower Mississippi Basin—Continued					
St. Francis:	Feet			Feet	
				23.7	Apr. 7-8
				24.6	Apr. 17
				23.5	May
Fisk, Mo.....	20	Mar. 24	5	22.7	2-3, 10
		22	( <sup>2</sup> )		2
				20.2	Mar. 23
				20.3	Mar. 26
				21.9	Apr. 8
St. Francis, Ark.....	18	Mar. 19	( <sup>2</sup> )	23.4	Apr. 20
				21.5	May 3-5
				22.8	May 10
				21.9	12
				20.1	18
Parkin, Ark.....	28	23	( <sup>2</sup> )	29.3	27-29
Madison, Ark.....	32	29	( <sup>2</sup> )	32.0	29-30
Mississippi:					
New Madrid, Mo.....	34	18	30	35.1	24-27
Red River Landing, La.....	45	Mar. 15	May 31	56.4	Apr.
					29-30
		Mar. 14	5	45.2	Apr.
Baton Rouge, La.....	35			45.6	18-19
				45.7	Apr. 27
					29-30
		28	( <sup>2</sup> )		
Atchafalaya Basin					
Atchafalaya:					
Melville, La.....	37	Mar. 16	3	45.5	Apr. 20
				45.6	Apr. 22
				45.7	Apr. 25
				28.4	May 1
Atchafalaya, La.....	25	Mar. 8	( <sup>2</sup> )	27.7	3-8
					May 19
				8.8	Apr. 1
				7.2	Apr.
					16-17
				8.0	Apr. 28
				7.7	May 2
				8.0	May
Morgan City, La.....	6	Apr. 6	16		11-12
				8.3	May 16
				7.3	May 25
				6.8	11
				6.7	14
		24	26	6.2	24
		28	29	6.5	28
WEST GULF OF MEXICO DRAINAGE					
Sabine: Gladewater, Tex.....	26	15	27	38.0	17-18
Elm Fork: Carrollton, Tex.....	6	13	14	6.5	13
East Fork: Rockwall (nr.), Tex.....	10	11	16	20.2	13
		18	19	11.0	19
Trinity:					
Dallas, Tex.....	28	13	15	32.0	13-14
Rosser (nr.), Tex.....	26	13		31.8	16
Trinidad, Tex.....	28	14	24	38.0	19
Long Lake, Tex.....	40	18	26	42.2	19-20
Liberty, Tex.....	24	26	July 3	25.3	July 2
PACIFIC SLOPE DRAINAGE					
San Joaquin Basin					
Kings: Piedra, Calif.....	10	13	13	10.6	13
		14	14	10.6	14
		15	15	10.2	15
Columbia Basin					
Willamette: Portland, Oreg.....	18	10	10	18.1	10
Columbia: Vancouver, Wash.....	15	1	18	18.4	10-11

<sup>1</sup> Provisional.<sup>2</sup> Continued into July.